



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,282	08/18/2003	Naoki Ito	116373	2441
25944	7590	07/20/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER CHUO, TONY SHENG HSIANG	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 07/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/642,282

Applicant(s)

ITO ET AL.

Examiner

Tony Chuo

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 23-35, 39, 40, 43, 44 and 47-49 is/are pending in the application.
- 4a) Of the above claim(s) 1-12, 35, 39 and 49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-25, 34, 40, 43, and 47 is/are rejected.
- 7) ☒ Claim(s) 26-33, 44 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-12, 23-35, 39, 40, 43, 44, and 47-49 are currently pending. Claims 1-12, 35, 39, and 49 are withdrawn from further consideration as being drawn to a non-elected invention. Claims 13-22, 36-38, 41, 42, 45, 46, and 50 are cancelled. The amended claims do not overcome the previously stated 102 rejection. Therefore, claims 23-25, 34, 40, 43, and 47 stand rejected under the following 102 rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23-25, 34, 40, 43, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Shibata et al (US 2002/0098404). Regarding claims 23 and 40, the Shibata reference discloses a fuel cell and method of making a fuel cell comprising: an electrolyte membrane comprising an adhering anode layer "31" and a solid electrolyte layer "10" that is an inorganic electrolyte layer formed on one side of the adhering anode layer; an oxygen electrode "22" disposed on one side of the electrolyte membrane; and a hydrogen electrode "32" disposed on the other side of the electrolyte membrane (See paragraph [0030] and Figure 1A). Examiner's note: Although Shibata et al does not expressly disclose an oxidizing gas supply portion and a fuel gas supply

Art Unit: 1745

portion, it is inherent that all fuel cells comprise an oxidizing gas supply portion and a fuel gas supply portion. In addition, the adhering anode layer "31" is construed as a substrate formed from a dense hydrogen permeable material. The adhering electrode layers are dense, discontinuous thin film layers which means that all portions of surfaces of individual particles do not necessarily contact others perfectly so that individual particles have portions that do not contact others (See paragraph [0042]). Therefore, hydrogen gas can diffuse through this discontinuous thin film layer. In addition, it also discloses that the adhering anode layer "31" in the fuel electrode "30" is one constituting a three phase interface that is an electrochemical reaction field required for a cell reaction (See paragraph [0032]). This implies that the adhering anode layer permeates the hydrogen in the state of protons or hydrogen atoms.

Regarding claims 24 and 34, it also discloses an electrolyte layer "10" that is coated with a cathode adhering layer "21" that is interposed between the electrolyte layer "10" and the oxygen electrode "22" (See Figure 1A). Examiner's note: The cathode adhering layer is construed as a dense hydrogen permeable material.

Regarding claim 25, it also discloses an adhering anode layer that is made of nickel, nickel-chromium alloy, or nickel-iron alloy and a adhering cathode layer that is made of silver, platinum, gold, etc (See paragraphs [0047],[0048]).

Regarding claims 43 and 47, it also discloses an inorganic electrolyte layer "10" that is a thin membrane (See paragraph [0046]).

Allowable Subject Matter

4. Claims 26-33, 44, and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Shibata reference discloses a fuel cell comprising an electrolyte membrane having a dense hydrogen permeable layer and an inorganic electrolyte layer formed on one side of the dense hydrogen permeable layer. However, Shibata et al does not expressly teach a hydrogen permeable material that includes at least two hydrogen separation membrane layers made of different kinds of metal, and a metal diffusion suppression layer provided on at least a part of a contact interface between the separation membrane layers of the different kinds of metal; a substrate that is formed from one of vanadium, niobium, and tantalum; an electrolyte layer that is a composite oxide containing an A-site material having an alkali metal element as a principal component and a B-site material having another element as a principal component; and an inorganic layer that has a thickness of 0.1 to 1 μm .

Response to Arguments

5. Applicant's arguments filed 5/17/07 have been fully considered but they are not persuasive.

The applicant argues that nowhere does Shibata disclose the uniformly dense particle arrangement of thin membrane layers described in instant independent claims 23 and 40. This argument is not commensurate with the scope of the claims because

Art Unit: 1745

claims 23 and 40 do not recite a uniformly dense particle arrangement of thin membrane layers. In addition, Shibata et al discloses the adhering anode layer constituting a three phase interface that is an electrochemical reaction field required for a cell reaction which implies that hydrogen permeates in the state of protons or hydrogen atoms. Otherwise, the adhering anode layer would not be able to function as part of the fuel electrode. Further, regardless of how the permeability of the claimed membrane is achieved, Shibata et al still discloses a dense hydrogen permeable material.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


JONATHAN CREPEAU
PRIMARY EXAMINER